New Jersey Department of Health and Senior Services

HAZARDOUS SUBSTANCE FACT SHEET

Common Name: **ASBESTOS**

CAS Number: See last page
DOT Number: NA 2212

RTK Substance number: 0164
Date: September 1994 Revision: January 2001

HAZARD SUMMARY

* **Asbestos** can affect you when breathed in.
* **Asbestos** is a CARCINOGEN--HANDLE WITH EXTREME CAUTION.
* Repeated exposure to **Asbestos** can cause the disease called *Asbestosis*, a scarring of the lungs that results in changes on chest x-rays. *Asbestosis* develops some years (from seven to thirty) after the period of exposure. Symptoms include cough, shortness of breath and chest pain. It can progress to disability and death. The earlier exposure is stopped, the better the chance of stopping serious disease later.

IDENTIFICATION

Asbestos is the common name for a group of mineral fibers that range in color from white, green, brown, to blue. It is used as a fireproofing and insulating agent, and in brake linings.

REASON FOR CITATION

* **Asbestos** is on the Hazardous Substance List because it is regulated by OSHA and cited by ACGIH, DOT, NIOSH, NTP, DEP, IARC, HHAG and EPA.
* This chemical is on the Special Health Hazard Substance List because it is a **CARCINOGEN**.
* Definitions are provided on page 5.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information and training concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard, 1910.1200, requires private employers to provide similar training and information to their employees.

* Exposure to hazardous substances should be routinely evaluated. This may include collecting personal and area air samples. You can obtain copies of sampling results from your employer. You have a legal right to this information under OSHA 1910.1020.
* If you think you are experiencing any work-related health problems, see a doctor trained to recognize occupational diseases. Take this Fact Sheet with you.

WORKPLACE EXPOSURE LIMITS

The following exposure limits are for fibers longer than **5 micrometers**:

OSHA: The legal airborne permissible exposure limit (PEL) is **0.1 fiber/cc** (fiber per cubic centimeter) averaged over an 8-hour workshift and **1 fiber/cc** not to be exceeded during any 15 minute work period.

NIOSH: The recommended airborne exposure limit is **0.1 fiber/cc** averaged over a 10-hour workshift.

ACGIH: The recommended airborne exposure limit is **0.1 fiber/cc** averaged over an 8-hour workshift.

* **Asbestos** is a CARCINOGEN in humans. There may be no safe level of exposure to a carcinogen, so all contact should be reduced to the lowest possible level.

WAYS OF REDUCING EXPOSURE

* Enclose operations and use local exhaust ventilation at the site of chemical release. If local exhaust ventilation or enclosure is not used, respirators should be worn.
* A regulated, marked area should be established where **Asbestos** is handled, used, or stored as required by the OSHA Standard 29 CFR 1910.1001.
* Wear protective work clothing.
* Wash thoroughly when leaving a regulated area and at the end of the workshift.
* Post hazard and warning information in the work area. In addition, as part of an ongoing education and training effort, communicate all information on the health and safety hazards of **Asbestos** to potentially exposed workers.

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Asbestos**:

* There are no known acute effects. People who develop serious and fatal disease later in life may feel fine at the time of exposure.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Asbestos** and can last for months or years:

Cancer Hazard

* **Asbestos** is a CARCINOGEN in humans. It has been shown to cause lung cancers (including *mesothelioma*), as well as stomach, colon, rectal, vocal cord and kidney cancers.
* Many scientists believe there is no safe level of exposure to a carcinogen.

Reproductive Hazard

* According to the information presently available to the New Jersey Department of Health and Senior Services, **Asbestos** has been tested and has not been shown to affect reproduction.

Other Long-Term Effects

* Repeated exposure to **Asbestos** can cause the disease called *Asbestosis*, a scarring of the lungs that results in changes on chest x-rays. *Asbestosis* develops some years (from seven to thirty) after the period of exposure. Symptoms include cough, shortness of breath and chest pain. It can progress to disability and death. The earlier exposure is stopped, the better the chance of stopping serious disease later.

MEDICAL

Medical Testing

Before beginning employment and at least annually after that, the following are recommended:

* A medical and work history.
* Completion of a standardized questionnaire.
* A physical exam focusing on the pulmonary and gastrointestinal systems.
* Any other exams or tests suggested by the examining physician.

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under OSHA 1910.1020.

Mixed Exposures

* Because smoking can cause heart disease, as well as lung cancer, emphysema, and other respiratory problems, it may worsen respiratory conditions caused by **Asbestos** exposure. Even if you have smoked for a long time, stopping now will reduce your risk of developing health problems.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, **ENGINEERING CONTROLS** are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

In evaluating the controls present in your workplace, consider: (1) how hazardous the substance is, (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

* Specific engineering controls are required for this chemical by OSHA. Refer to the OSHA Standard for General Industry: 1910.1001, and the OSHA Standard for Construction: 1926.1101.
* Substitute the less toxic *mineral wool* and *fiberglass* for **Asbestos** where possible. There are substitutes for almost every use of **Asbestos**.
* There are extensive recommended and required engineering and procedural regulations for construction and repair projects involving **Asbestos** material. Before disturbing any **Asbestos** containing materials, contact the NJDHSS for more information.

Good **WORK PRACTICES** can help to reduce hazardous exposures. The following work practices are recommended:

* Workers whose clothing has been contaminated by **Asbestos** should change into clean clothing promptly.
* Do not take contaminated work clothes home. Family members could be exposed.

* Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to **Asbestos**.
* Wash any areas of the body that may have contacted **Asbestos**.
* Do not eat, smoke, or drink where **Asbestos** is handled, processed, or stored, since the chemical can be swallowed. Wash hands carefully before eating, drinking, smoking, or using the toilet.
* Ongoing **Asbestos** abatement projects in sealed areas become very hot and humid. There is a risk of heat stress. You should be trained by your employer to recognize the warning signs and the proper actions to take to avoid seriously dangerous working conditions.
* Use a vacuum or a wet method to reduce dust during clean-up. DO NOT DRY SWEEP.
* When vacuuming, a high efficiency particulate air (HEPA) filter should be used, not a standard shop vacuum.

PERSONAL PROTECTIVE EQUIPMENT

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT. However, for some jobs (such as outside work, confined space entry, jobs done only once in a while, or jobs done while workplace controls are being installed), personal protective equipment may be appropriate.

OSHA 1910.132 requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

Clothing

* Avoid skin contact with **Asbestos**. Wear protective gloves and clothing. Safety equipment suppliers/manufacturers can provide recommendations on the most protective glove/clothing material for your operation.
* Contaminated, disposable, work clothes must be disposed of with **Asbestos** waste.
* Non-disposable clothing must be placed in properly labeled plastic bags for laundering or decontamination by the employer.
* All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Eye Protection

* Eye protection is included in the recommended respiratory protection.

Respiratory Protection

IMPROPER USE OF RESPIRATORS IS DANGEROUS. Such equipment should only be used if the employer has a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing and medical exams, as described in OSHA 1910.134.

The OSHA Standard 29 CFR 1910.1001 requires the following respiratory protection:

* Where the potential exists for exposure over **0.1 fiber/cc**, use a half-mask air purifying respirator equipped with high efficiency filters. Disposable respirators are not permitted.
* Where the potential exists for exposure over **1 fiber/cc**, use a full facepiece air purifying respirator equipped with high efficiency filters.
* For exposures over **5 fibers/cc**, use a powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in the continuous flow mode.
* For exposures over **10 fibers/cc** use a full facepiece supplied air respirator operated in the pressure-demand mode.
* If exposures are greater than **100 fibers/cc** use a full facepiece supplied air respirator operated in the pressure-demand mode equipped with an auxiliary positive-pressure self-contained breathing apparatus.
* The New Jersey Department of Health and Senior Services recommends that during **Asbestos** abatement projects, when it is impossible to use supplied air or self-contained breathing apparatus, a full facepiece powered air purifying respirator with high efficiency particulate filters be used.

HANDLING AND STORAGE

* Prior to working with **Asbestos** you should be trained on its proper handling and storage.
* A regulated, marked area should be established where **Asbestos** is handled, used, or stored.
* Airborne **Asbestos** dust is very difficult to remove. It is essential that any area where **Asbestos** is handled be enclosed and isolated. The material should be kept wet with special surfactants and water.
* Enclose operations and use local exhaust ventilation with negative pressure air filtration and high efficiency particulate filers in area of **Asbestos** removal. If enclosure with containment "glove" bags is not used for minor repairs, respirators must be worn and proper procedures must be followed.
* All **Asbestos** materials must be removed and disposed of according to regulations. The area must be monitored to ensure airborne **Asbestos** levels are below limits prior to reoccupation of the area where **Asbestos** was disturbed.

QUESTIONS AND ANSWERS

Q: If I have acute health effects, will I later get chronic health effects?
A: Not always. Most chronic (long-term) effects result from repeated exposures to a chemical.

Q: Can I get long-term effects without ever having short-term effects?
A: Yes, because long-term effects can occur from repeated exposures to a chemical at levels not high enough to make you immediately sick.

Q: What are my chances of getting sick when I have been exposed to chemicals?
A: The likelihood of becoming sick from chemicals is increased as the amount of exposure increases. This is determined by the length of time and the amount of material to which someone is exposed.

Q: When are higher exposures more likely?
A: Conditions which increase risk of exposure include dust releasing operations (grinding, mixing, blasting, dumping, etc.), other physical and mechanical processes (heating, pouring, spraying, spills and evaporation from large surface areas such as open containers), and "confined space" exposures (working inside vats, reactors, boilers, small rooms, etc.).

Q: Is the risk of getting sick higher for workers than for community residents?
A: Yes. Exposures in the community, except possibly in cases of fires or spills, are usually much lower than those found in the workplace. However, people in the community may be exposed to contaminated water as well as to chemicals in the air over long periods. This may be a problem for children or people who are already ill.

Q: Don't all chemicals cause cancer?
A: No. Most chemicals tested by scientists are not cancer-causing.

The following information is available from:

New Jersey Department of Health and Senior Services
Occupational Health Service
PO Box 360
Trenton, NJ 08625-0360
(609) 984-1863
(609) 292-5677 (fax)

Web address: http://www.state.nj.us/health/eoh/odisweb/

Industrial Hygiene Information

Industrial hygienists are available to answer your questions regarding the control of chemical exposures using exhaust ventilation, special work practices, good housekeeping, good hygiene practices, and personal protective equipment including respirators. In addition, they can help to interpret the results of industrial hygiene survey data.

Medical Evaluation

If you think you are becoming sick because of exposure to chemicals at your workplace, you may call personnel at the Department of Health and Senior Services, Occupational Health Service, who can help you find the information you need.

Public Presentations

Presentations and educational programs on occupational health or the Right to Know Act can be organized for labor unions, trade associations and other groups.

Right to Know Information Resources

The Right to Know Infoline (609) 984-2202 can answer questions about the identity and potential health effects of chemicals, list of educational materials in occupational health, references used to prepare the Fact Sheets, preparation of the Right to Know survey, education and training programs, labeling requirements, and general information regarding the Right to Know Act. Violations of the law should be reported to (609) 984-2202.

DEFINITIONS

ACGIH is the American Conference of Governmental Industrial Hygienists. It recommends upper limits (called TLVs) for exposure to workplace chemicals.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is assigned by the Chemical Abstracts Service to identify a specific chemical.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes irreversible damage to human tissue or containers.

DEP is the New Jersey Department of Environmental Protection.

DOT is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

EPA is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

HHAG is the Human Health Assessment Group of the federal EPA.

IARC is the International Agency for Research on Cancer, a scientific group that classifies chemicals according to their cancer-causing potential.

A **miscible** substance is a liquid or gas that will evenly dissolve in another.

mg/m^3 means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

MSHA is the Mine Safety and Health Administration, the federal agency that regulates mining. It also evaluates and approves respirators.

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

NAERG is the North American Emergency Response Guidebook. It was jointly developed by Transport Canada, the United States Department of Transportation and the Secretariat of Communications and Transportation of Mexico. It is a guide for first responders to quickly identify the specific or generic hazards of material involved in a transportation incident, and to protect themselves and the general public during the initial response phase of the incident.

NCI is the National Cancer Institute, a federal agency that determines the cancer-causing potential of chemicals.

NFPA is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

NIOSH is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

NTP is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

OSHA is the Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

PEOSHA is the Public Employees Occupational Safety and Health Act, a state law which sets PELs for New Jersey public employees.

PIH is a DOT designation for chemicals which are Poison Inhalation Hazards.

ppm means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

TLV is the Threshold Limit Value, the workplace exposure limit recommended by ACGIH.

The **vapor pressure** is a measure of how readily a liquid or a solid mixes with air at its surface. A higher vapor pressure indicates a higher concentration of the substance in air and therefore increases the likelihood of breathing it in.

>>>>>>>>>>>>>>>>> EMERGENCY INFORMATION <<<<<<<<<<<<<<<<<

Common Name: **ASBESTOS**
DOT Number: **NA 2212**
NAERG Code: **171**
CAS Number: **See below**

Hazard rating	NJDHSS	NFPA
FLAMMABILITY	0	-
REACTIVITY	0	-
CARCINOGEN		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

FIRE HAZARDS

* Extinguish fire using an agent suitable for type of surrounding fire. **Asbestos** itself does not burn.
* Care should be taken to contain **Asbestos** materials disturbed in a fire.
* If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 1910.156.

SPILLS AND EMERGENCIES

If **Asbestos** is spilled, or **Asbestos**-containing materials are damaged, take the following steps:

* Evacuate persons not wearing protective equipment from area of spill until clean-up is complete.
* Repair or removal of **Asbestos** must be conducted by trained personnel.
* **Asbestos** must be wetted, enclosed and/or ventilated prior to removal.
* It may be necessary to contain and dispose of **Asbestos** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.
* If employees are required to clean-up spills, they must be properly trained and equipped. OSHA 1910.120(q) may be applicable.

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FOR LARGE SPILLS AND FIRES immediately call your fire department. You can request emergency information from the following:

CHEMTREC: (800) 424-9300
NJDEP HOTLINE: 1-877-WARN-DEP

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HANDLING AND STORAGE (See page 3)

FIRST AID

In NJ, for POISON INFORMATION call 1-800-764-7661

Eye Contact

* Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

Skin Contact

* Remove contaminated clothing. Wash contaminated skin with soap and water.

Breathing

* Remove the person from exposure.
* Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
* Transfer promptly to a medical facility.

PHYSICAL DATA

Vapor Pressure: 0 mm Hg at 68^{o}F (20^{o}C)

OTHER COMMONLY USED NAMES

Asbestos is the common name for any of the following:

Asbestos (*no specification*)	CAS # 1332-21-4
Asbestos, Actinolite	CAS # 77536-66-4
Asbestos, Amosite	CAS # 12172-73-5
Asbestos, Anthophyllite	CAS # 77536-67-5
Asbestos, Chrysotile	CAS # 12001-29-5
Asbestos, Crocidolite	CAS # 12001-28-4
Asbestos, Tremolite	CAS # 77536-68-6

NEW JERSEY DEPARTMENT OF HEALTH AND
SENIOR SERVICES
Right to Know Program
PO Box 368, Trenton, NJ 08625-0368
(609) 984-2202
